DESCRIPTION

METHOD OF APPLYING HAIR DYE COMPOSITION

TECHNICAL FIELD

The present invention relates to a method of applying a hair dye composition and, more particularly, to a method of applying a hair dye composition, which is capable of dyeing only the hair certainly and uniformly while inhibiting the scalp from coloring.

BACKGROUND ART

Heretofore, a hair dye composition has commonly been applied to the dry skin in case of applying the hair dye composition to the hair. It is considered that application of the hair dye composition to the wet hair sometimes causes poor hair dyeing ability and hair dyeing unevenness, and also it is likely to cause a problem such as contamination of portions other than the hair due to running of the hair dye composition. Therefore, it has never been made a proposal of applying the hair dye composition after wetting the hair.

As hair dyeing has recently become popular irrespective of age or sex, great many peoples begin to enjoy hair dyeing. Under these circumstances, hair dyeing products, which enable one to easily dye one's hair by oneself in one's home, have attracted special interest.

However, application of a conventional hair dye composition

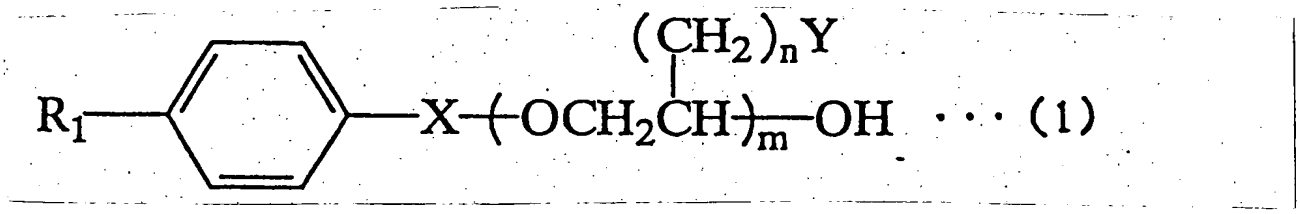
to the dry hair by a conventional method caused a problem that the hair as well as other portions are dyed and the hair dye composition is not easily washed off. As a measure to counter the problem, other portions are masked with an oily cream when the hair dye composition is applied to the hair. However, the measure was not sufficient to prevent the scalp and other portions from dyeing. In case of dyeing the hair by oneself in one's hole, it is much more difficult to apply the hair dye composition to one's hair by oneself, and also it is very difficult to sufficiently take a measure of preventing the scalp and other portions from coloring.

Under these circumstances, the present invention has been made and an object thereof is to provide a method of applying a hair dye composition, which is capable of dyeing only the hair certainly and uniformly while inhibiting the scalp from coloring, and smoothly applying to the hair.

DISCLOSURE OF THE INVENTION

The method of applying a hair dye composition is a method of applying a hair dye composition to the hair, which comprises uniformly wetting the hair, to which the hair dye composition is applied, with water in the environment at a temperature of 10 to 40℃, wiping water off to the extent that water dripping does not occur, removing moisture remained on the scalp, and applying an acidic hair dye composition to the hair in a wet condition.

It is preferred that the acidic hair dye composition contains one or more auxiliary hair dyes selected from aromatic alcohols represented by the general formula (1):



wherein R_1 represents a hydrogen atom, a methyl group, or a methoxy group, X represents a single bond, or a straight-chain or branched alkylene or alkenylene group having 1 to 3 carbon atoms, Y represents a hydrogen atom or a hydroxyl group, and m and n each represents an integer of 0 to 5, and n-butanol, an acidic dye and water and the pH is within a range from 2.0 to 4.5.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram for explaining the procedure of one embodiment of the method of applying a hair dye composition of the present invention; Fig. 2 is a diagram for explaining one example of a hair dyeing appliance used in this embodiment; and Figs. 3 to 5 are diagrams for explaining the procedure of the above embodiment.

BEST MODE FOR CARRYING OUT THE INVENTION

The embodiments of the present invention will now be

described in detail.

In the method of applying a hair dye composition of the present invention, an acidic hair dye composition is applied to the hair in a wet condition after uniformly wetting the hair, to which the hair dye composition is applied, with water, wiping water off to the extent that water dripping does not occur, and removing moisture remained on the scalp. First, the entire hair, to which the hair dye composition is applied, is uniformly wetted with water or warm water, and then water is wiped off with a towel to the extent that water dripping does not occur. At this time, the scalp is sufficiently wiped with a towel, resulting in a condition where less moisture is remained on the scalp and only the hair is appropriately wetted. In the method of applying a hair dye composition of the present invention, since the hair is dyed certainly and uniformly by reacting moisture of the hair in the wet condition with the acidic hair dye composition, the scalp is likely to be dyed if much moisture is remained on the scalp.

The acidic hair dye composition is applied to the hair in the wet condition in the environment at a temperature of 10 to 40℃. When the temperature is lower than 10℃, the hair dyeing ability tends to be inferior. On the other hand, when the temperature is higher than 40℃, the hair dyeing ability to the scalp is enhanced, though the hair dyeing ability is excellent. Therefore, it is not preferred to apply at the temperature that is not within the above range. In other words, according to the

method of applying a hair dye composition of the present invention, excellent hair dyeing ability to the hair can be obtained even if a pre-treatment such as warming treatment is not conducted. Therefore, even if a complicated warming treatment is conducted to enhance the hair dyeing ability, a problem such as enhancement of the hair dyeing ability to the scalp does not occur. Accordingly, it is made possible to conduct an ideal hair dyeing in which the hair is certainly dyed without enhancing the hair dyeing ability to the scalp even at a normal room temperature within a range from 15 to 35℃. The time required to leave after applying the hair dye composition can be appropriately set within a range from 5 to 30 minutes, and preferably about 15 minutes as a target.

The embodiments of the method of applying a hair dye composition of the present invention will now be described by way of examples. First, as shown in Fig. 1, the entire hair is uniformly wetted with water or warm water at room temperature, and then moisture of the hair is removed to the extent that water dripping does not occur by mainly wiping the scalp with a towel. An oily cream is applied to the hairline and scruff and, after wearing gloves, application of the hair dye composition starts. On application of the hair dye composition to the hair, a hair dyeing appliance comprising a combination of a squeeze type bottle container (1) containing the hair dye composition and a brush (2) shown in Fig. 2 is used. This hair dyeing appliance has a function

of delivering an appropriate amount of the hair dye composition through the spacing between hairs of the brush (2) by squeezing the body portion of the bottle container (1).

First, as shown in Fig. 3, the hair dye composition is applied to the hair at the rear portion, and then applied to the hair at the front and side portions as shown in Fig. 4. Finally, as shown in Fig. 5, the hair dye composition is applied to the hairline that is easily dyed, and then the hair dye composition is sufficiently spread over the entire hair while combing the entire hair. After leaving for about 15 minutes in this condition, the hair was rinsed with warm water until the color of warm water used after rinsing becomes pale. The hair was washed with a shampoo, finished with a rinse, and then completely dried. Thus, it is made possible to achieve the ideal condition where only the hair is dyed certainly and uniformly without carelessly coloring the scalp.

Examples of aromatic alcohols represented by the general formula (1), which is used in the acidic hair dye composition suited for the method of applying a hair dye composition of the present invention, include benzyl alcohol, cinnamyl alcohol, phenethyl alcohol, phenoxyethanol, p-methylbenzyl alcohol, 2-benzyloxyethanol and the like.

The amount of one or more auxiliary hair dyes selected from aromatic alcohols represented by the general formula (1) and n-butanol is preferably set within a range from 4 to 20% by weight

based on the entire acidic dye composition. When the amount of one or more auxiliary hair dyes in the acidic hair dye composition is less than 4% by weight, the hair dyeing ability is sometimes inferior according to the hair quality. On the other hand, even if the amount exceeds 20% by weight, the hair dyeing ability is not always improved.

As the acidic dye to be incorporated into the acidic hair dye composition, a tar pigment can be used. When classified roughly by a chemical structure, the tar pigment includes, for example, nitro dye, azo dye, nitroso dye, triphenylmethane dye, xanthene dye, quinoline dye, anthraquinone dye, indigo dye or the like. Specific examples thereof include Red No.2, Red No.3, Red No.102, Red No.104, Red No.105, Red No.106, Yellow No.4, Yellow No.5, Green No.3, Blue No.1, Blue No.2, Red No.201, Red No.220, Red No.227, Red No.230, Red No.231, Red No.232, Orange No.205, Orange No.207, Yellow No.202, Yellow No.203, Green No.201, Green No.204, Green No.205, Blue No.202, Blue No.203, Blue No.205, Brown No.201, Red No.401, Red No.502, Red No.503, Red No.504, Red No.506, Orange No.402, Yellow No.402, Yellow No.403, Yellow No.406, Yellow No.407, Green No.401, Green No.402, Violet No.401, Black No.401 and the like. Among these acidic dyes, one or more acidic dyes can be used in combination, and the amount is preferably set within a range from 0.2 to 2.0% by weight.

If necessary, solvents are incorporated into the acidic hair dye composition. On incorporation of the solvent, the

solvent is selected from those, which can dissolve the auxiliary hair dye and can be incorporated into cosmetics, and used. Specifically, a lower alcohol such as ethanol or isopropyl alcohol, a lower ether such as dimethyl ether or diethyl ether, and a lower ketone such as acetone can be used. Among these solvents, ethanol is preferably used in view of the physical stability and economical efficiency.

The amount of the solvent is preferably a sufficient amount to change into a dispersion condition, namely, a condition where the auxiliary hair dye dissolved in a transparent condition in a system of an acidic hair dye composition is uniformly separated, visually, in the presence of water when the auxiliary hair dye dissolved in the system of the acidic hair dye composition is applied to the hair in the wet condition. The moisture content of the hair in the wet condition is not fixed, but is preferably controlled to a content 1.0-2.0 times as much as a minimum content, which can be dissolved in a solvent alone at 20℃, based on the amount of the auxiliary hair dye to be incorporated. When the moisture content is less than 1.0 times as much as the minimum content, it is not preferred in view of the stability because the auxiliary hair dye is separation. On the other hand, when the moisture content exceeds 2.0 times as much as the minimum content, the hair dyeing ability is likely to be inferior.

In the method of applying a hair dye composition of the present invention, it is necessary to formulate the hair dye

composition to be applied to the hair in the form of an acidic hair dye composition. The hair dye composition is used as it is, or the pH of the hair dye composition is adjusted within a range from 2.0 to 4.5 by using an acid and, if necessary, salts thereof. One or more of an organic acid such as citric acid, lactic acid, glycolic acid, tartaric acid, acetic acid, propionic acid, salicylic acid, malic acid, butyric acid, succinic acid or gluconic acid and an inorganic acid such as hydrochloric acid or phosphoric acid can be optionally used in combination. If necessary, salts such as sodium salt, potassium salt, ammonium salt, triethanolamine salt and the like of these acids can be used. Furthermore, one or more of an alkali such as sodium hydroxide, potassium hydroxide, ammonia water or the like can be optionally used in combination. The amount of these acids and salts thereof is preferably adjusted to 10.0% by weight or less taking an influence of stimulation into consideration. On adjustment of the pH, publicly known buffers such as combination of a weak acid and a salt thereof can also be used. At this time, the buffer capacity is preferably adjusted to a fixed value, for example, 0.01 g eq./liter or more in order to inhibit a variation in pH due to application to the hair to the utmost.

Furthermore, water-soluble polymers can be incorporated into the acidic hair dye composition. The water-soluble polymer is incorporated for the purpose of imparting the viscosity to the hair dye composition, thereby making it easy to apply the hair

dye composition to the skin, and preventing the hair dye composition from running on application. Examples of the water-soluble polymer include a cellulose polymer such as ethylcellulose, methylcellulose, hydroxyethylcellulose or cationically modified cellulose, and natural polysaccharides such as xanthane gum and guar gum. Furthermore, an acrylic copolymer such as carboxyvinyl polymer or acrylic acid-alkyl methacrylate copolymer, and a synthetic polymer such as polyvinyl alcohol or polyvinyl pyrrolidone can be used, and one or more of these polymers can be arbitrarily selected and used. On incorporation of these water-soluble polymers, the amount is preferably adjusted within a range from 0.1 to 10.0% by weight.

The following Examples further illustrate the method of applying a hair dye composition of the present invention in detail.

(Example 1)

Components	Amount (% by weight)
Benzyl alcohol	10.0
Hydroxyethylcellulose	1.5
Ethanol	23.0
Glycolic acid	4.0
Orange No.205	0.2
Yellow No.403	0.2
Sodium hydroxide	q.s.
Purified water	balance

Each of acidic hair dye compositions with the above formulation was prepared (pH: 3.5) by a conventional method and 20 professional panellers were asked to apply hair dye compositions at room temperature (23℃) in accordance with the

above embodiment and to evaluate the hair dyeing ability of the hair and coloring of the scalp. As a result, 19 professional panellers out of 20 professional panellers rated that hair dye compositions have excellent hair dyeing ability and the hair was dyed uniformly and satisfactorily with respect to the hair dyeing ability of the hair, while 18 professional panellers out of 20 professional panellers rated that the scalp is free from coloring with respect to coloring of the scalp. Furthermore, they rated that hair dye compositions are easy to apply because the hair is in the wet condition and can be smoothly spread over the hair.

(Example 2)

Components	Amount (% by weight)
Benzyl alcohol	10.0
n-butanol	6.0
Hydroxyethylcellulose	2.5
Ethanol	35.0
Keltrol	0.2
Lactic acid	6.0
Violet No.401	0.4
Yellow No.403	0.3
Sodium hydroxide	q.s.
Purified water	balance

Each of acidic hair dye compositions with the above formulation was prepared (pH: 4.0) by a conventional method and 20 professional panellers were asked to apply hair dye compositions at room temperature (18℃) in accordance with the above embodiment and to evaluate the hair dyeing ability of the hair and coloring of the scalp. As a result, 17 professional panellers out of 20 professional panellers rated that hair dye compositions have excellent hair dyeing ability and the hair was

dyed uniformly and satisfactorily with respect to the hair dyeing ability of the hair, while 19 professional panellers out of 20 professional panellers rated that the scalp is free from coloring with respect to coloring of the scalp. Furthermore, they rated that hair dye compositions are easy to apply because the hair is in the wet condition and can be smoothly spread over the hair.

(Example 3)

Components	Amount (% by weight)
Benzyl alcohol	10.0
Hydroxyethylcellulose	1.0
Xanthane gum	0.3
Ethanol	26.0
Lactic acid	4.5
Sodium lactate	0.5
Orange No.205	0.15
Yellow No.403	0.2
Purified water	balance

Each of acidic hair dye compositions with the above formulation was prepared (pH: 3.6) by a conventional method and 20 professional panellers were asked to apply hair dye compositions at room temperature (27℃) in accordance with the above embodiment and to evaluate the hair dyeing ability of the hair and coloring of the scalp. As a result, 18 professional panellers out of 20 professional panellers rated that hair dye compositions have excellent hair dyeing ability and the hair was dyed uniformly and satisfactorily with respect to the hair dyeing ability of the hair, while 19 professional panellers out of 20 professional panellers rated that the scalp is free from coloring

with respect to coloring of the scalp. Furthermore, they rated that hair dye compositions are easy to apply because the hair is in the wet condition and can be smoothly spread over the hair. (Comparative Example)

The same 20 professional panellers as in the above Examples were asked to apply the same acidic hair dye compositions as in Example 1 to the hair in a dry condition. The coating appliance, applying method and time required to leave after application are the same as in the above embodiment, and they were asked to rate the hair dyeing ability of the hair and coloring of the scalp. As a result, 14 professional panellers out of 20 professional panellers rated that the hair dyeing ability is inferior to the Examples, while 13 professional panellers out of 20 professional panellers rated that the scalp was drastically dyed. Furthermore, they rated that hair dye compositions were not smoothly applied as compared with the hair in the wet condition and it took a long time to spread hair dye compositions over the entire hair.

Although examples of applying an acidic hair dye composition and a hair manicure to the hair were described in the above Examples, the method of applying a hair dye composition of the present invention can be used in case of applying various hair dye composition such as hair dye composition for dyeing gray hair, color foam for gray hair and the like. It is a method which exerts the same effect on not only the entire hair, but also partial hair to be dyed.

Industrial Applicability

As described above, the method of applying a hair dye composition of the present invention makes it possible to dye only the hair certainly and uniformly while inhibiting the scalp from coloring, and to smoothly apply the hair dye composition to the hair. According to the method of applying a hair dye composition of the present invention, it is made possible to enable one to easily dye the hair by oneself in one's home.